the abutment **17** which then maintains continual contact on the rotating rotor outer wall **49**. As shown, the magnets **21** are positioned above the abutment **17** in the abutment pocket **19**.

An eccentrically mounted rotor **22** is comprised of a cylindrical body for rotation with an input structure, the axial driven post or shaft **28**. With rotation in a clockwise rotation when viewing the pump **10** a segment of the outside diameter of the rotor **22** is in contact against the inner wall **14**. During rotation, there is continuous wiping contact with the chamber inner wall **14**.

Rotor drive comes from driven post or shaft **28**, its location is the geometric center of the stator **20**. The rotor **22** and driven post or shaft **28** can be comprised from a single piece of material. FIG. **1** includes a perspective view of a single piece rotor and driven post. The solid rotor and driven post can be molded, cast, and/or machined for strength and economy of manufacture.

The invention utilizes repelling magnets to mechanically pressure abutments of rotary pumps. With the advent of rare earth magnets, magnetic forces have increased and the relative sizes of the magnets have decreased which makes this application ideal. These very strong permanent magnets are made from alloys of rare earth elements such as Neodymium and Samarium Cobalt. The invention can also incorporate other magnet types such as Ferrite or Alnico. Also shown in FIG. **1** is an exploded detail view of the pump **10**, abutment pocket **19**, magnets **21**, and abutment **17** of the abutment rotary pump embodiment.

The repelling magnets exert downward pressure on the abutment even while the pump is not operating always effecting a seal on the rotor and therefore partitioning the intake and exhaust ports. Springs are sometimes used to force an abutment against the rotor. Springs are subject to taking a set when kept in a stationary position which can happen during periods of pump non-operation. Springs can fatigue rather quickly in high speed applications. Also, extra space is required to accommodate the overall length of the spring as compared to compact rare earth magnets. When the pump is running, the abutment as result of the constant energy exerted by the repelling magnets allows intake, compression and exhaust functions of the rotating rotor. The magnets must not be in the proximity of magnetic materials which would deter their function in this application.

Referring now to FIGS. **2A**-**2D**, a description of operation will be given. FIGS. **2A**-**2D** represents progressively different degrees of rotor position over about 360° of travel in a clockwise direction. FIG. **2A** corresponds in rotor position to FIG. **1**.

In FIG. **2A**, the rotor is nearing full upward movement of the abutment **17**. Note pump **10** and the gas or liquid flow indicated by directional arrows entering inlet port **16** and exiting outlet port **18** and position of rotor **22**.

In FIG. **2B**, the rotor **22** has pushed the abutment **17** into the topmost position in the abutment pocket **19**. The rotor has wiping contact with the inner wall except momentarily when the rotor body is in direct contact with the abutment as shown. It is critical to design clearance between the magnets for this abutment position. For safety, the magnets should never contact because they could chip, crack or shatter. Remarkably at this time, the repelling exerted by the magnets on the abutment is peaking when needed the most. Again, the magnets repelling pressure on the abutment and consequently the rotor is variable and continuously matches the rotor movement for sealing. The abutment **17** maintains a separation of the inlet and outlet ports **16** and **18** through every rotor rotation.

In FIG. **2C**, the rotor begins both intake and compression stroke. Note in every sequential illustration there is a fluid medium going through the inlet **16** and outlet **18** ports as indicated by the directional arrows.

In FIG. **2D**, the abutment **17** is fully extended out of the abutment pocket **19**. At this time, the magnet repelling pressure on the abutment is at its lowest. During all positions, the rotor **22** is bringing about intake, compression, and exhausting a fluid medium such as a gas, a liquid, or combination thereof.

It will finally be understood that the disclosed embodiments represent presently preferred forms of the invention, but are intended to be explanatory rather than limiting of the invention. Reasonable variation and modification of the invention as disclosed in the foregoing disclosure and drawings are possible without departing from the scope of invention. The scope of the invention is defined by the following claims.

What is claimed is:

**1**. An abutment rotary pump comprising:

a stator defining a closed chamber having a continuous inner wall, with an intake and an exhaust port being formed in the inner wall at spaced-apart locations;

an abutment pocket formed in the inner wall located between the intake and exhaust port locations; and

repelling magnets having a clearance between faces with the same polarity facing each other; wherein the repelling magnets positioned above an abutment to exert pressure on the abutment to continually contact a rotating rotor;

wherein the abutment affixed in the abutment pocket.

**2**. The abutment rotary pump as defined in claim **1**, wherein materials of construction for the pump, rotor, driven post, and abutment are chosen from the group consisting of non-magnetic materials of plastics and ceramics.

**3**. The abutment rotary pump as defined in claim **1**, wherein the inner wall is circular.

**4**. The abutment rotary pump as defined in claim **1**, further comprising a driven post located at the geometric center of the chamber.

**5**. The abutment rotary pump as defined in claim **1**, wherein the rotor and driven post are comprised from a single piece of material.

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